

DRAFT: Columbus Building Code Update

CHAPTER 4191

Airport Land Use Management District (ALUMD)

Sections:

4191.01	Purpose.
4191.02	Definitions.
4191.021	Airport.
4191.0215	Airport environs.
4191.022	Airport hazard.
4191.023	Airport hazard area.
4191.024	Day-night sound level (Ldn).
4191.025	Interior noise level.
4191.026	Ldn contour.
4191.027	Noise.
4191.028	Noise control area.
4191.0285	Operating authority.
4191.029	Structure.
4191.03	Area of applicability.
4191.04	Application of Building Code.
4191.05	Interior noise levels.
4191.06	Scope.
4191.07	Structures requiring protection.
4191.08	Requirements for noise levels over 65 Ldn.
4191.09	General criteria.
4191.10	Exterior wall criteria
4191.11	Window criteria.
4191.12	Door criteria.
4191.13	Roof criteria.
4191.14	Ceiling criteria.
4191.15	Floor criteria.
4191.16	Ventilation criteria.

Cross References

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4191.01 Purpose.

This chapter is intended to protect the public health, safety and welfare by regulating development within noise control areas, the Airport Land Use Management District, to ensure compatibility between Port Columbus International, Bolton Field and Ohio State University Airports, and any future airport and surrounding land uses; to protect said airports from incompatible encroachment; to mitigate noise impact by use of specific construction methods; and to establish uniform insulation standards to protect persons within hotels, motels, apartment houses, attached and detached single-family dwellings, other residential buildings, and other buildings where noise-sensitive activities are affected by excessive aircraft noise.

Chapter 3384, “Airport Land Use Management District”, of the Zoning Code, and Airport Environs” sections of the Subdivision Code, Chapter 3123, are companions to this chapter.

4191.02 Definitions.

For the purposes of this chapter the following terms, phrases, words and their derivations in C.C. 4191.021 to 4191.03, inclusive, shall have the meaning given therein. When not inconsistent with the context, words used in the present tense include the future, words in the plural number include the singular, words in the singular number include the plural, and words in the masculine gender include the feminine and neuter. Definitions contained in Chapter 4101, C.C. and not in conflict, shall apply.

4191.021 Airport.

“Airport” means any airfield located within the corporate limits of the city, owned and operated by the city or other governmental agency, and subject to Ldn contours approved by the Federal Aviation Administration, presently including, but in the future may not be limited to, Port Columbus International Airport, Bolton Field Airport, and Ohio State University Airport (a/k/a Don Scott Field).

4191.0215 Airport environs.

“Airport environs” means the geographic area that is affected by the airport air traffic operations and is defined on the basis of those areas immediately impacted by the most recently charted noise exposure contours and greater noise exposure areas based upon the Land Use Compatibility Guidelines approved by the Federal Aviation Administration (FAA). These areas constitute the Airport Land Use Management District (ALUMD) established in Chapter 3384.

4191.022 Airport hazard.

“Airport hazard” means any building, structure, object of natural growth, or use of land within an airport hazard area which obstructs the air space required for the flight of aircraft in landing or taking off at an airport or which is otherwise hazardous to such landing or taking off of aircraft.

4191.023 Airport hazard area.

“Airport hazard area” means any area of land adjacent to an airport which has been declared to be an “airport hazard area” by its operating authority in connection with any airport approach plan recommended by such authority.

4191.024 Day-night sound level (Ldn).

“Day-night sound level” (Ldn) means a cumulative aircraft noise index which estimates the exposure of an area to aircraft noise and relates the estimated exposure to an expected community response.

Decibels of noise (dB) are measured by an A-weighted sound-level meter. In the Ldn procedure, noise exposures are accumulated for a typical twenty-four (24) hour period. A weighing factor equivalent to a penalty of ten decibels (10 dB) is applied to aircraft operations or other noise sources between 10:00 p.m. and 7:00 a.m. to take into account the increased sensitivity of people to night-time noise. The Ldn values are expressed graphically on maps using contours.

4191.025 Interior noise level.

“Interior noise level” is the sound level of noise in any habitable room with windows and doors closed.

4191.026 Ldn contour.

“Ldn contour” means a line linking together a series of points of equal cumulative noise exposure based on the Ldn metric. Such contours are developed based on aircraft flight patterns, number of daily aircraft operations by type of aircraft and time of day, noise characteristics of each aircraft, and typical runway usage patterns.

4191.027 Noise.

“Noise” means aircraft or other noise which interferes with speech and hearing, or is intense enough or damage hearing, or is otherwise annoying.

4191.028 Noise control area.

“Noise control area” means an area established within the Airport Land Use Management District, designated to be within Boundary B.

4191.0285 Operating authority.

“Operating authority” means the person, board, commission or agency responsible for management of an airport such as, but not limited to, the Columbus Regional Airport Authority or the Ohio State University Board of Trustees.

4191.029 Structure.

“Structure” means an assembly of materials forming a construction for occupancy or use as set out in C.C. 4109.19 and in addition, for purposes of this chapter only, means any object, whether permanent or temporary, including, but not limited to, tower, crane, smokestack, earth formation, transmission line or flagpole, and includes a mobile or tethered object

4191.03 Area of applicability.

The standards and requirements of this chapter shall apply within the Airport Land Use Management District as established in Chapter 3384 of the Zoning Code and as amended from time to time, and which is indicated on the Zoning Map by the designation ALUMD.

4191.04 Application of Building Code.

The construction or modification of buildings and structures within the Airport Land Use Management District is subject to review as described in this chapter and shall be evaluated for consistency with Chapter 3384 Table 1, Land Use Compatibility Standards, Airport Land Use Management District.

4191.05 Interior noise levels.

Acceptable Interior Noise Level, Day-Night Sound Level (Ldn), attributable to exterior sources, for any new construction or modification of facilities is expected to be achieved by compliance with the standards of this chapter.

4191.06 Scope.

The standards and criteria shall be applied to construction of new residential or noise-sensitive non-residential uses and to those improvements included in reconstruction or remodeling of, or addition to, an existing building of the type mentioned above. Where noise-sensitive activities are carried on in only a portion of a new or reconstructed non-residential building, only those areas judged noise-sensitive need be protected

4191.07 Structures requiring protection.

Structures to be protected shall include, but are not limited to:

- A) All residential structures (OBBC R-1, R-2, R-3 and R-4 occupancies); and
- B) The portion of nonresidential structures where noise-sensitive activities are conducted within the building or which are open to one or more members of the public, e.g., offices, reception areas, libraries, research facilities, meeting rooms, and similar activities.

4191.08 Requirements for noise levels within Subdistricts A and B

All structures regulated under this chapter within Subdistricts A and B of the Airport Land Use Management District shall meet the criteria set out in C.C. 4191.09 to 4191.16, inclusive.

4191.09 General criteria

- A) Brick or stone veneer, masonry blocks or stucco exterior walls shall be constructed airtight. All joints shall be grouted or caulked airtight.
- B) At the penetration of exterior walls by pipes, ducts or conduits the space between the walls and pipes, ducts or conduits shall be caulked or filled with mortar.
- C) Window and/or through-the-wall heating, ventilation or air conditioning type units shall not be used.
- D) An operational vented fireplace shall not be used unless supplied with a proper flue, operable damper, and glass door
- E) All sleeping spaces shall be provided with a sound-absorbing ceiling and a carpeted floor
- F) Through-the-wall/door mailboxes shall not be used

4191.10 Exterior wall criteria

In addition to the temperature insulation requirements of the Building Code, the following standards shall apply:

- A) Stud walls shall be at least four inches in nominal depth and shall be finished on the outside with siding of stucco, brick, or stone veneer over sheathing or siding-on-sheathing.
- B) Interior surface of the exterior stud walls shall be of gypsum board or plaster at least one-half (1/2) inch thick, installed on the studs. The gypsum board or plaster may be fastened rigidly to the studs if the exterior is stucco or brick or stone veneer. If the exterior is siding-on-sheathing, the interior gypsum board or plaster shall be fastened resiliently to the studs as to resume a prior position or form after being stretched or compressed.
- C) Continuous compression board, plywood or gypsum board sheathing shall cover the exterior surface of the wall studs behind wood, vinyl, or metal siding installed so there are no gaps between individual sheets. The sheathing and facing shall weigh at least four pounds per square foot.
- D) All joints of the sheathing shall be sealed with resilient caulking.
- E) Insulation material rated R-13 or greater shall be installed continuously throughout cavity space behind the exterior sheathing and between wall studs. Insulation shall be glass fiber, foam or mineral wool.

4191.11 Window criteria.

- A) Windows shall be of double-glazed glass and each layer of the glass shall be at least one-eighth (1/8) inch thick with a Sound Transmission Class rating of 39.
- B) Double glazed windows shall employ fixed sash or efficiency weather-stripped operable sash. The sash shall be rigid and weather-stripped with material that is compressed airtight when the window is closed.
- C) At least one window in each sleeping room shall be operable for emergency egress.
- D) Glass of fixed-sash windows shall be sealed in an airtight manner with a non-hardening sealant, or soft elastomeric gasket or glazing tape.
- E) The perimeter of a window frame shall be sealed airtight to the exterior wall construction with resilient sealant.
- F) The total area of glass of both windows and exterior doors in sleeping spaces shall not exceed twenty percent (20%) of the floor area.

4191.12 Door criteria.

- A) All exterior side-hinged doors shall be solid core wood or insulated metal at least one and three-quarter (1-3/4) inches thick and shall be fully weather-stripped.

- B) Glass sliding doors shall be double-glazed glass. The glass shall be at least three-sixteenths (3/16) of an inch thick and separated by no less than one-half (1/2) inch airspace. The frame shall be provided with an efficiently airtight weather-stripping material.
- C) The perimeter of door frames shall be sealed airtight to the exterior wall construction.
- D) Any door light shall be double-glazed and each layer of the glass shall be at least one-eighth (1/8) inch thick.
- E) Glass in doors shall be set and sealed in an airtight non-hardening sealant, or a soft elastomeric gasket or glazing tape.

4191.13 Roof criteria.

- A) With attic or rafter space at least six (6) inches deep, and a ceiling below, the roof shall consist of no less than one-half (1/2) inch composition board or plywood sheathing topped by roofing as required.
- B) If the underside of the roof is exposed, or if the attic or rafter space is less than six (6) inches, the roof construction shall have a surface weight of at least six (6) pounds per square foot, except in Subdistrict A of the Airport Land Use Management District, where the roof construction shall have a surface weight of at least nine (9) pounds per square foot. Rafters, joints, or other framing shall not be included in the surface weight calculation.
- C) Window or dome skylights shall be double-glazed and be separated by at least a one-half (1/2) inch airspace. Skylights are not permitted within Subdistrict A of the Airport Land Use Management District.
- D) Insulation material rated R-30 or greater shall be installed continuously throughout the cavity space between the roof and the ceiling. Insulation shall be glass fiber, foam or mineral wool.

4191.14 Ceiling criteria.

- A) Gypsum board or plaster ceilings at least one-half (1/2) inch thick shall be provided where required by the OBBC. Ceilings shall be substantially airtight, with minimum number of penetrations.
- B) Glass fiber, foam or mineral wool insulation at least six (6) inches thick shall be provided above the ceiling between joists.

4191.15 Floor criteria.

Any cantilevered floorspace shall be fully insulated and meet at least the minimum requirements for exterior walls.

4191.16 Ventilation criteria.

- A) A mechanical ventilation system shall be installed that will provide at least the minimum air circulation and fresh air supply requirements for various uses in occupied rooms without need to open any window, door or other opening to the exterior.
- B) Gravity vent openings in the attic shall not exceed code minimum in number and size. These openings shall be fitted with transfer ducts at least three (3) feet in length containing approved internal sound absorbing duct lining. Each ducts shall have a lined ninety (90) degree bend in the duct such that there is no direct line of sight from the exterior through the duct into the attic.
- C) If a fan is used for forced ventilation, the attic inlet and discharge openings shall be fitted with sheet metal transfer ducts of at least twenty (20) gauge steel, which shall be lined with one (1) inch thick approved duct liner, and shall be at least five (5) feet long with one ninety (90) degree bend, or approved equal. In Subdistrict A for the Airport Land Use Management District the duct lining shall be at least ten (10) feet long.
- D) All vent ducts connecting the interior space to the outdoors, excepting domestic range and dryer exhaust ducts, shall contain at least a ten (10) foot length of approved internal sound absorbing duct lining. Each duct shall be provided with a lined ninety (90) degree bend in the duct such that there is no direct line of sight through the duct.
- E) Duct lining shall be a coated glass fiber duct liner at least one inch thick approved and suitable for the intended use.
- F) A domestic range shall not utilize a ducted range hood in a residential building. Dryer exhaust ducts connecting the interior space to the outdoors shall contain a baffle plate across the exterior termination which allows proper ventilation. The baffle plate shall be of the same material and thickness as the vent duct material and shall have the same free area as the vent duct.
- G) Building heating units with flues or combustion air vents shall be located in a closet or small room closed off from the occupied space by a door or doors to contain noise.
- H) Doors between occupied space and mechanical equipment areas shall be solid core wood or twenty (20) gauge steel hollow metal at least one and three-fourths (1-3/4) inches thick and shall be fully weather-stripped on all four (4) edges. There shall be no louvers or other opening in any door or wall between occupied space and a mechanical room. All combustion air shall be taken directly from outdoors.